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Ellisembia henanensis sp. nov. and two new hyphomycete records from central China

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Abstract—*Ellisembia henanensis* is described and illustrated from specimens collected on dead branches in Henan Province. The fungus is characterized by distinct single unbranched erect conidiophores, monoblastic conidiogenous cells, and distoseptate fusiform to ellipsoidal conidia. *Lylea tetracoila* and *Menispora glauca* are newly recorded from China.

Key words—conidial fungi, taxonomy

Introduction

During our ongoing survey of microfungi associated with woody debris in subtropical forests of Henan provinces, three species with the morphological characteristics of the genera *Ellisembia* Subram., *Lylea* Morgan-Jones, and *Menispora* Pers. (Subramanian 1992, Morgan-Jones 1975, Persoon 1822) were collected on decaying twigs and dead stems. One of these represents an undescribed species of *Ellisembia*, while the other two specimens represent new species for China. Specimens are deposited in the Herbarium of Department of Plant Pathology, Shandong Agricultural University, Taian, Shandong, China (HSAUP) and the Mycological Herbarium, Institute of Microbiology, Chinese Academy of Sciences, Beijing, China (HMAS).

Materials & methods

Samples of woody debris collected were placed in separate zip-lock plastic bags, taken to the laboratory, and then incubated at 27°C for more than 2 weeks in an artificial

climate box in 9 cm diameter plastic Petri dishes containing moistened filter paper. Samples were examined under an Olympus SZ61 dissecting microscope. Fifty mature conidia and 30 conidiophores were mounted in lactophenol, measured at 600× and 1000× magnifications, and photographed with an Olympus BX53 microscope. Adobe Photoshop 7.0 was used to prepare the photographic images; the backgrounds replaced for esthetic reasons.

Taxonomy

Ellisembia henanensis J.W. Xia & X.G. Zhang, **sp. nov.** Fig. 1

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Differs from *Ellisembia ellipsoidea* by its smaller conidia with fewer distosepta.

Type: China, Henan Province, Jigong Mountain, on dead stems of an unidentified broadleaf tree, 16 Oct. 2015, J.W. Xia (**Holotype**, HSAUP H6697; **isotype**, HMAS 245597).

Etymology: in reference to the type locality.

Colonies on natural substrate effuse, pale brown to brown, hairy. Mycelium partly superficial, partly immersed in the substrate, composed of septate, pale brown, smooth, 2–4 µm wide hyphae. Conidiophores differentiated, single, erect, straight to slightly flexuous, cylindrical, smooth, thick-walled, pale brown to brown, 3–5-septate, 25–50 × 4–5 µm. Conidiogenous cells monoblastic, integrated, terminal, pale brown to brown, 10–15 × 4–5 µm. Conidial secession schizolytic. Conidia solitary, acrogenous, straight or slightly curved, fusiform to ellipsoidal, smooth-walled, pale brown to brown, 4–5-distoseptate, 25–35 × 6–7.5 µm, 1.5–2 µm wide at the truncate base.

Comments—*Ellisembia* was introduced by Subramanian (1992) to accommodate *Sporidesmium*-like species with determinate or irregularly percurrently extending conidiogenous cells that produce distoseptate conidia. Wu & Zhuang (2005) merged *Imicles* Shoemaker & Hambl. (Shoemaker & Hambleton 2001) into *Ellisembia* and expanded the generic concept to include species that produce typically lageniform, ovoid, or doliiform percurrently extending conidiogenous cells.

Ellisembia henanensis is morphologically similar to *E. ellipsoidea* W.P. Wu in conidial shape. However, *E. ellipsoidea* can be easily separated by its larger, 7–8-distoseptate conidia (40–45 × 10–11 µm; Wu & Zhuang 2005).

Lylea tetracoila (Corda) Hol.-Jech., Folia Geobot. Phytotax. 13: 437 (1978). Fig. 2

Colonies on dead wood effuse, dark brown, hairy. Mycelium superficial and immersed, septate, pale brown, smooth-walled hyphae, 1.5–2 µm thick.

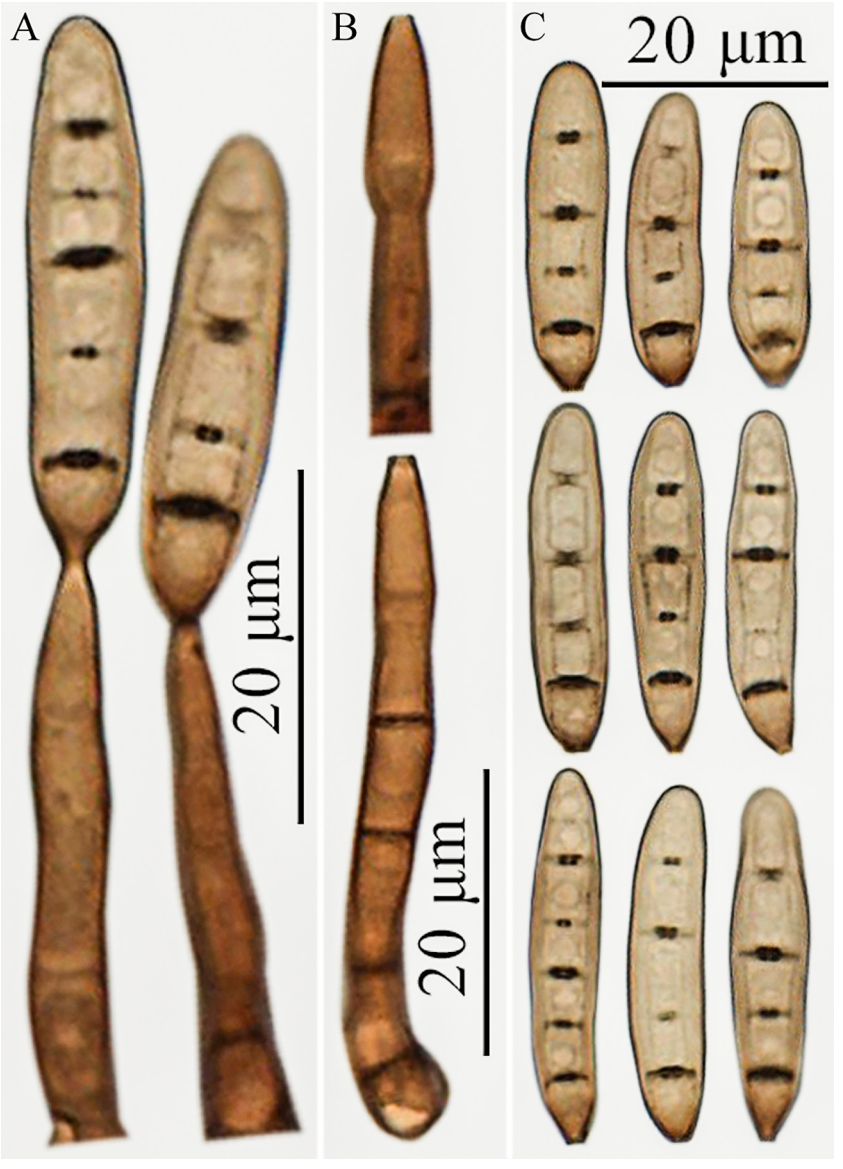

Fig. 1. *Ellisembia henanensis* (ex holotype, HSAUP H6697). A. Conidiophores, conidiogenous cells, and conidia; B. conidiophores and conidiogenous cells; C. conidia.

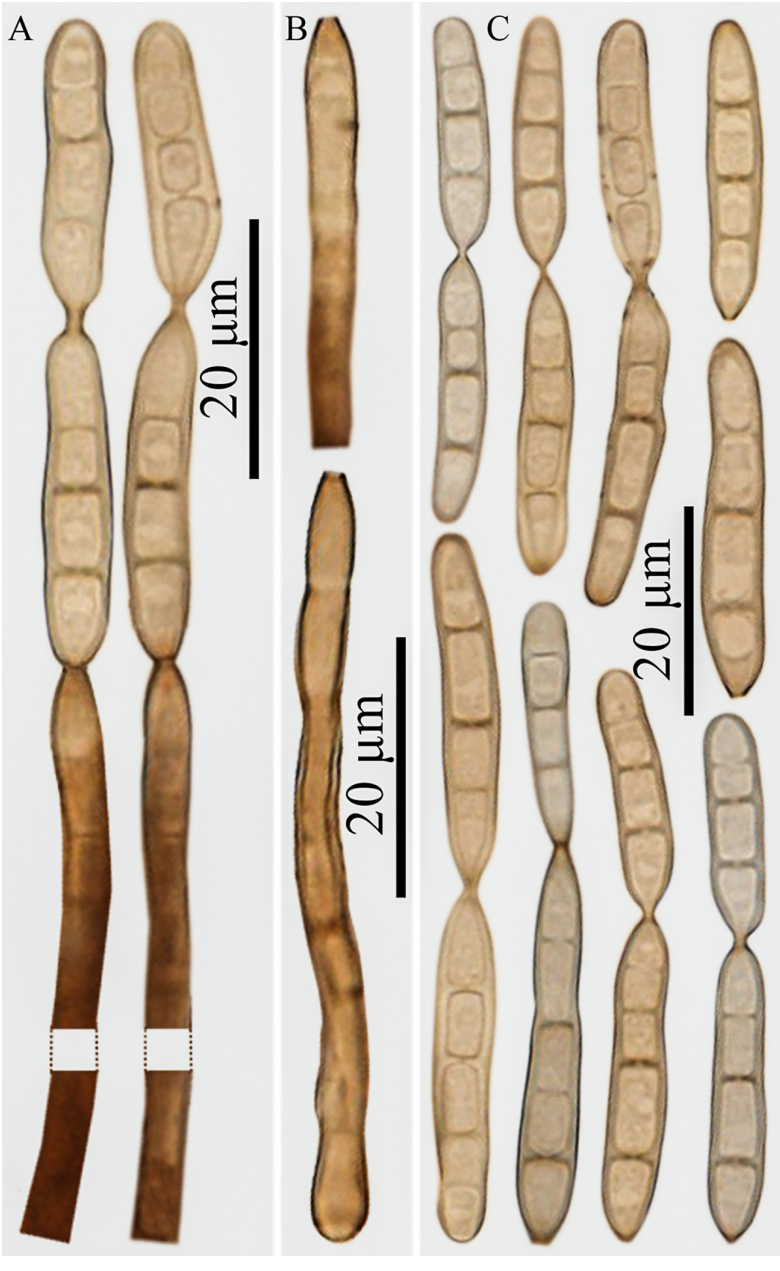

Fig. 2. *Lylea tetracoila* (ex HSAUP H6695). A. Conidiophores, conidiogenous cells, and conidia; B. conidiophores and conidiogenous cells; C. conidia.

Conidiophores macronematous, mononematous, cylindrical, unbranched, 3–6-septate, smooth, pale brown, 30–60 × 3–3.5 μm. Conidiogenous cells monoblastic, integrated, terminal, pale brown, 10–15 × 3–3.5 μm. Conidial secession schizolytic. Conidia holoblastic, solitary, dry, acrogenous, fusiform to cylindrical, 3–4-distoseptate, smooth-walled, pale brown, 20–40 × 4–6 μm.

Specimen examined: **China**, **Henan Province**: Jigong Mountain, on dead stems of unidentified broadleaf tree, 16 Oct. 2015, J.W. Xia (HSAUP H6695).

Comments—*Lylea* was established by Morgan-Jones (1975) with *L. catenulata* Morgan-Jones as the type species. The genus is characterized by the formation of catenate, distoseptate conidia from monoblastic conidiogenous cells. Six species have been described (Morgan-Jones 1975, Holubová-Jechová 1978, Mercado-Sierra et al. 1997, McKenzie 2009, Karandikar & Singh 2010, Xia et al. 2014).

Lylea tetracoila is reported for the first time from China. Our specimen closely matches the description by Holubová-Jechová (1978), which reported conidia measuring (17.5–)20–40(–65) × (3–)4–5.5(–7) μm. We believe they are conspecific.

Menispora glauca Pers., Mycol. Europ. 1: 32 (1822). Fig. 3

Colonies effuse, cushion-like, velvety to cottony, easily separable from the substratum, greyish to blue-grey when sporulating, dark grey-brown when old. Hyphae branched, pale to brown, 2–3 μm wide, septate, superficial and immersed in the substrate. Conidiophores setiform, erect, mostly unbranched, sometimes branched in the lower parts, whip-like twisted toward the apex, dark brown, septate, smooth, 270–450 × 3–4 μm, rounded apex up to 2–3 μm wide. Conidiogenous cells monophialidic, intercalary, discrete, determinate, pale brown, 15–25 × 3–4 μm. Conidia hyaline, cylindrical-allantoid, slightly tapered and rounded ends, curved, 3-septate, 15–20 × 3.5–4.5 μm, with a single, straight or gently curved setula, 4–8.5 μm long at each end.

Specimen examined: **China**, **Henan Province**: Jigong Mountain, on dead stems of an unidentified broadleaf tree, 16 Oct. 2015, J.W. Xia (HSAUP H6699).

Comments—The genus *Menispora*, initially erected by Persoon (1822), was re-described and revised by Hughes & Kendrick (1968) and Holubová-Jechová (1974) to include the following characteristics. Setae, which are either sterile independent structures or hair-like sterile extensions of the setiform conidiophores, are straight (slightly bent to sinuous) or variously coiled and twisted. Conidiogenous cells are terminal and integrated or intercalary and discrete on branched conidiophores. When the conidiophore is setiform, the phialidic conidiogenous cells are (i) lateral and sessile, or (ii) terminal on short

Fig. 3. *Menispora glauca* (ex HSAUP H6699). A. Conidiophore (distal end of sterile extension); B. partial conidiophores, conidiogenous cells, and conidia; C. conidia.

simple stalks, or (iii) lateral and terminal on once- or twice-branched divergent or crowded laterals. The conidiogenous cells are usually slightly or strongly recurved at the apex.

Menispora glauca is reported for the first time from China. Our specimen fits well with the description by Holubová-Jechová (1974), which reported conidia measuring 17–24(–27) × (3.7–)4–5 μm. We conclude that they are conspecific.

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